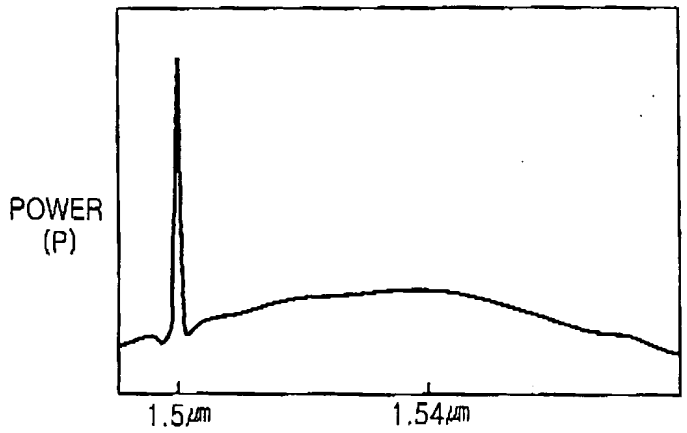

FIG.1
(PRIOR ART)

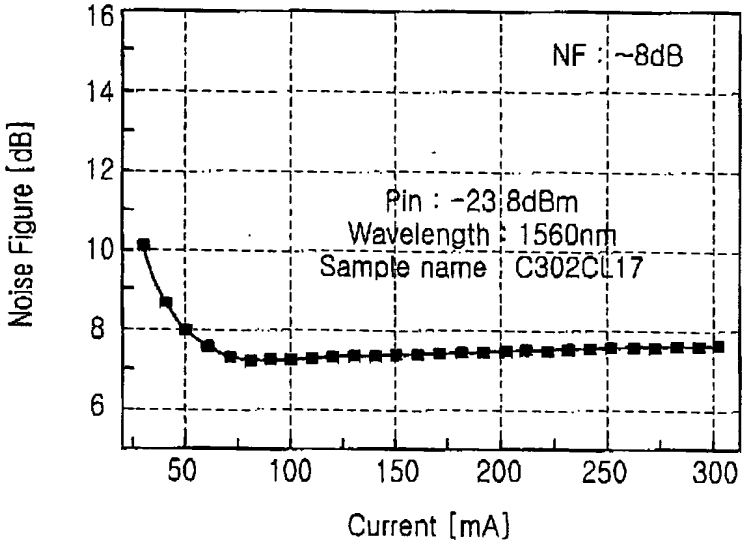

FIG.2
(PRIOR ART)

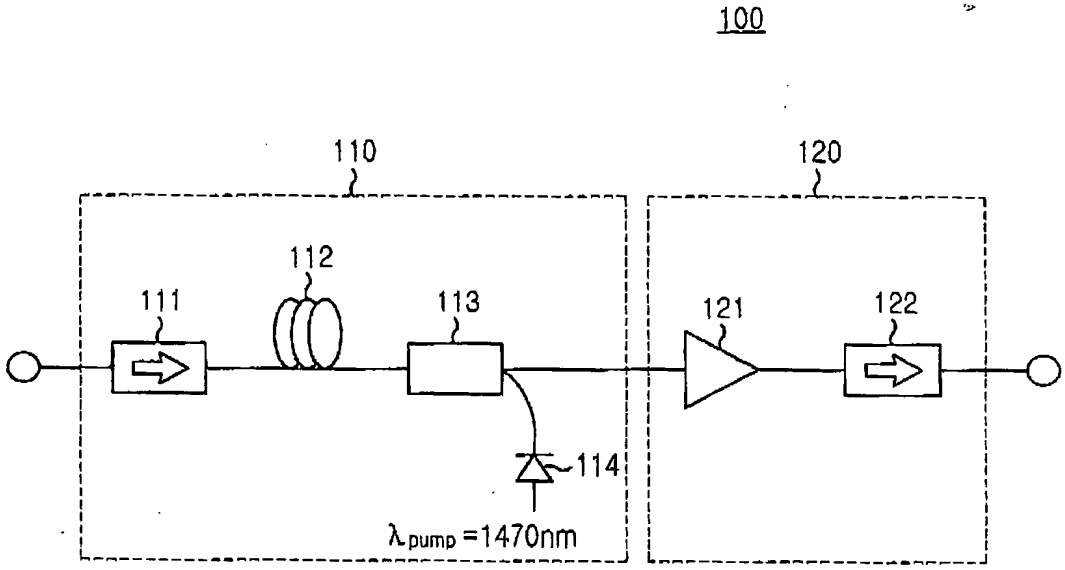

FIG.3
(PRIOR ART)

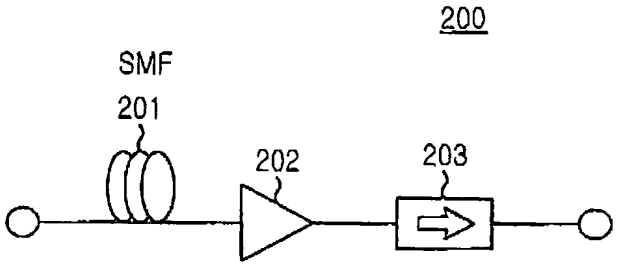

FIG.4

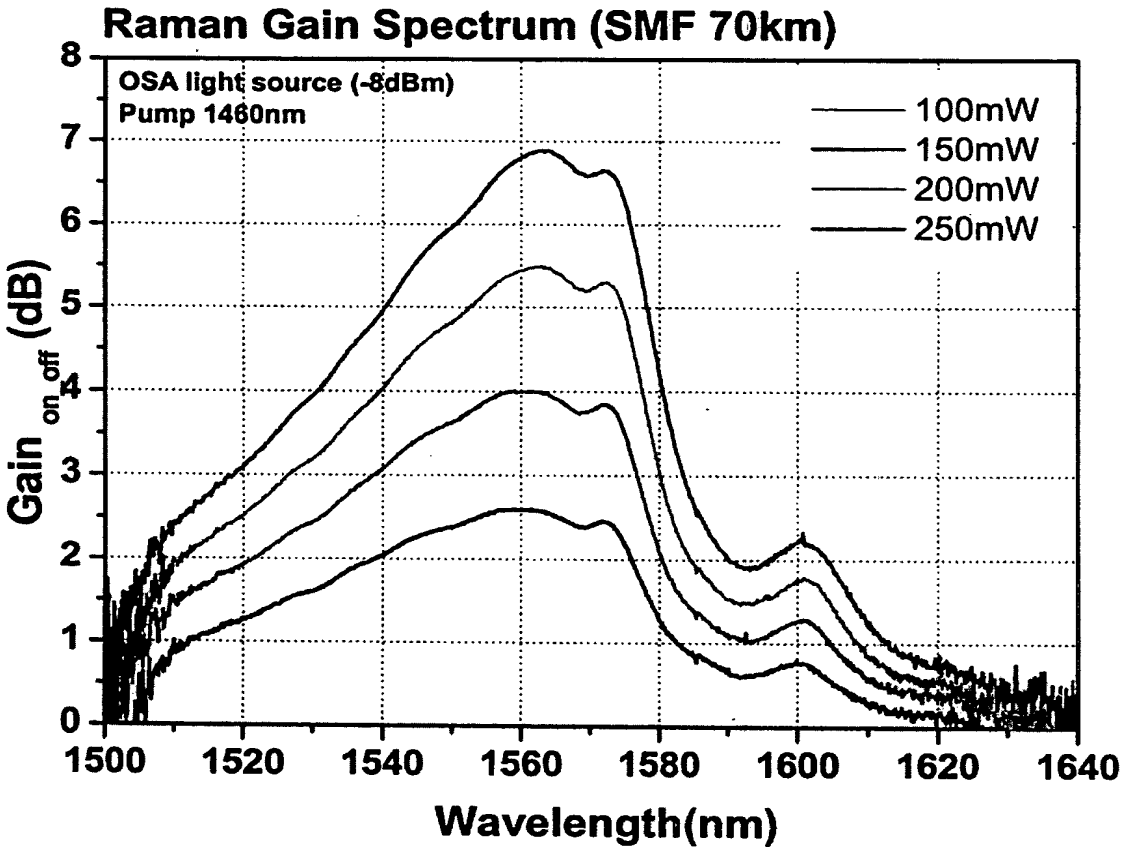
Raman Gain Spectrum (SMF 70km)
OSA light source (-8dBm)
Pump 1460nm
100mW
150mW
200mW
250mW
Gain on off (dB)
0
1
2
3
4
5
6
7
8
1500
1520
1540
1560
1580
1600
1620
1640
Wavelength(nm)

FIG.5

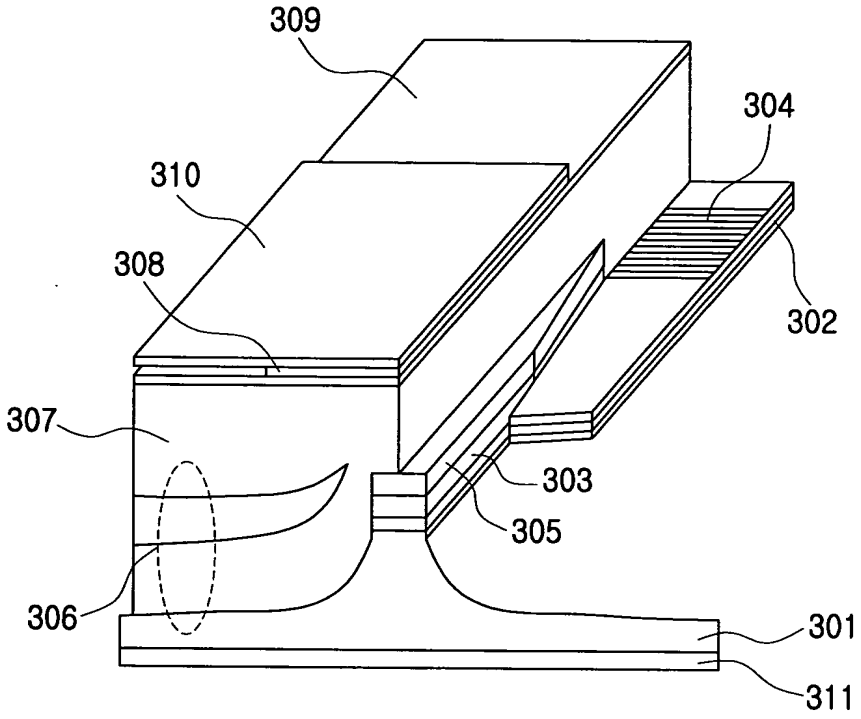

FIG.6

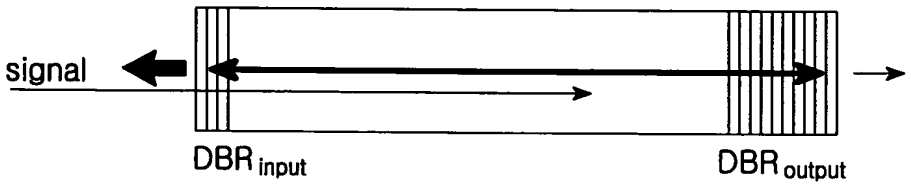
signal
DBR input
DBR output

FIG.7

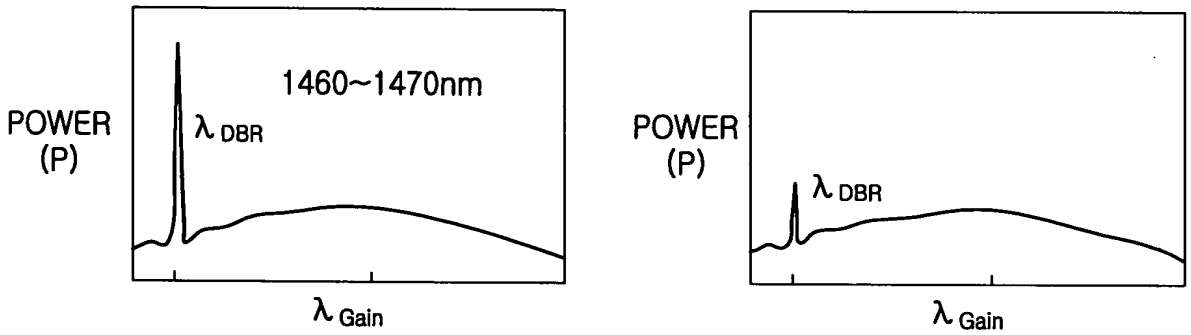
POWER
(P)
1460~1470nm
λ DBR
λ Gain
(a)
POWER
(P)
λ DBR
λ Gain
(b)

FIG.8

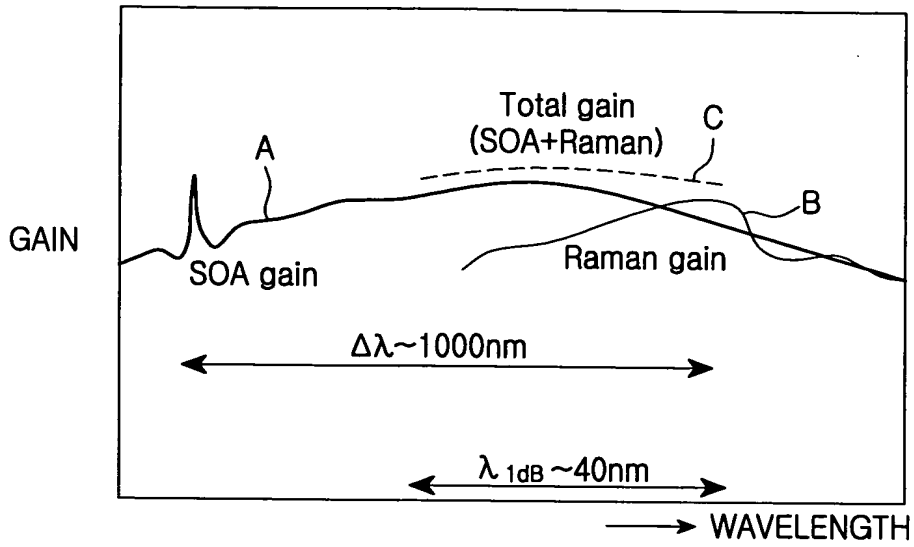
GAIN
A
Total gain
(SOA+Raman)
C
B
SOA gain
Raman gain
Δλ~1000nm
λ 1dB ~40nm
WAVELENGTH

FIG.9